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Self-exited gas oscillations in Helmholtz resonator type combustor

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Abstract

When the length of the resonance tube is much less and order of the acoustic wavelength is studied. Experimental set-up with a multiport burner is considered. The "energy balance" method is used to calculate the frequency and amplitude of the gas oscillations. The results of measurements and calculations show that increasing the length of the resonance tube causes the excitation oscillation with a first lower frequency. Further, there are no oscillations. When the length of the resonance tube becomes the order of the wavelength, the second resonant frequency is excited. The calculation results are in good agreement with the experimental data.

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